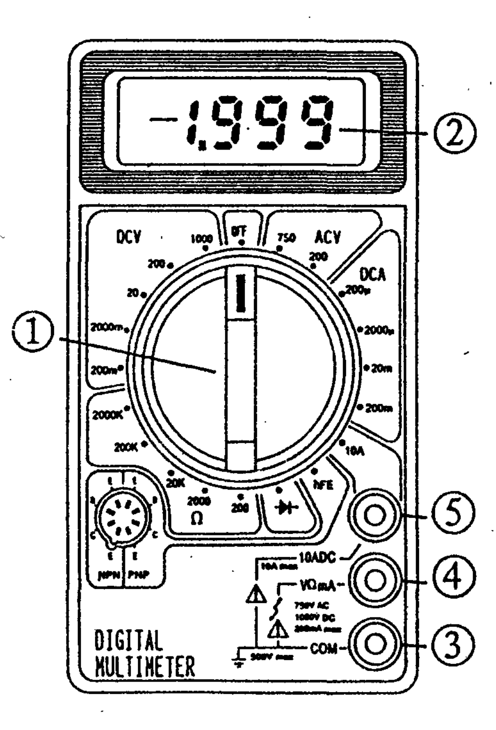


GENERAL

This Instrument is one of the series ol pocket-sized 31/2 digit multimeters for measuring DC and AC voltage. DC current, resistance and diode. Some of those also provide temperature transistor measurement and audible continuity test function or can be used as a signal generator or battery tester. Full range overload protection and low voltage battery indication are provided. They are ideal instruments tor use in fields, such as laboratory, workship. hobby and home applications.

FRONT PANEL DESCRIPTION

1. FUNCTION AND RANGE SWITCH

This switch is used to select the function and desired range as well as to turn on the instrument.

To extend the life of this battery, the switch should be in the "OFF" position when the instrument is not is use.

2. DISPLAY

3 1/2 digit, 7 segment, 0.5' high LCD.

3. "Common" JACK

Plug in connector for black (negalive) test lead.

4. "V Q mA" JACK

Plug in connector for red (Positive) test lead for al voltage and resistance and current (except 10A) measurements.

5. "10A" JACK

Plug in connector for red (positive) test lead for I0A measurement.

SPECIFICATIONS

Accuracies are guaranteed for 1 year, 23° C ± 5° C, less than 75% RH.

DC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200 mV	100 μV	± 0.25% of rdg ± 2D
2000 mV	1 mV	± 0.5% of rdg ± 2D
20 V	10 mV	± 0.5% of rdg ± 2D
200 V	100 mV	± 0.5% of rdg ± 2D
1000 V	1 V	± 0.5% of rdg ± 2D

OVERLOAD PROTECTION: 200 Vms AC for 200 mV range and 1000V DC or 750 Vrms AC for other ranges.

AC VOLTAGE

RANGE	RESOLUTION	ACCURACY
200 V	100 mV	± 1.2% of rdg ± 10D
750 V	1 V	± 1.2% of rdg ± 10D

OVERLOAD PROTECTION: 1000V DC or 750 Vrms for all ranges.

RESPONSE: Averange responding, calibrated in rms of a sine wave.

FREQUENCY RANGE: 45 Hz - 450Hz

DC CURRENT

RANGE	RESOLUTION	ACCURACY
200 μA	100 nA	± 1 % of rdg ± 2D
2000 μA	1 μA	± 1 % of rdg ± 2D
20 mA	10 μA	± 1 % of rdg ± 2D
200 mA	100 μA	± 1.2 % of rdg ± 2D
10 A	10mA	± 2% of rdg ± 2D

OVERLOAD PROTECTION: 200 mA 250 V fuse (10A range unfused).

MEASURING VOLTAGE DROP: 200mV.

RESISTANCE

RANGE	RESOLUTION	ACCURACY
200 ohm	100 mohm	± 0.8% of rdg ±2D
2000 ohm	1 ohm	± 0.8% of rdg ± 2D
20 Kohm	10 ohm	± 0.8% of rdg ± 2D
200 Kohm	100 ohm	± 0.8% of rdg ±2D
2000 Kohm	1 Kohm	± 1% of rdg ± 2D

MAXIMUM OPEN CIRCUIT VOLTAGE: 2.8V.

OVERLOAD PROTECTION: 15 seconds maximum 220 Vrms on all ranges.

AUDIBLE CONTINUITY

RANGE	DESCRIPTION
	Built-in buzzer sounds if resistance is less then 1 Kohm

OVERLOAD PROTECTION: 15 seconds maximum 220 Vrms. Sounds alarm.

TEMPERATURE (K TYPE PROBE)

RANGE	RESOLUTION	ACCURACY
-20° C	1° C	±3° ±2D (up to 150° C)
1370° C		±3% of rdg (over 150° C)

OVERLOAD PROTECTION: 220Vrms AC.

BATTERY TEST

RANGE	RESOLUTION	ACCURACY	TEST CURRENT
1.5V	1mV	±1.0% of rdg ±2D	100mA,
9V	10mV	±1.0% of rdg ±2D	6mA

OVERLOAD PROTECTION 1/4 200mA 250V fuse.

OPERATIONG INSTRUCTIONS

WARNING

1. To avoid electrical shock hazard and/or damage of the instrument, do not measure voltages that might exceed 500V above earth ground.

2. Before the use of instrument, inspect test leads, connectors and probes for cracks, breaks, or crazes in the insulation.

DO VOLTAGE MEASUREMENT

1. Connect red test lead to "V Ω mA" jack. Black lead to "COM" jack.

2. Set RANGE swich to desired DCV position. If the voltage to be measured is not known beforehand, set switch to the highest range and reduce it untill satisfactory reading is obtained.

3. Connect test leads to device or circuit being measured.

4. Turn on power of the device or circuit being measured, voltage value will appear on Digital Display along with the voltage polarity.

AC VOLTAGE MEASUREMENT

1. Red lead to "V Ω mA". Black leak to "COM"

2. RANGE switch to desired ACV position.

3. Connect test leads to device or circuit being tested.

4. Read voltage value on Digital Display.

DC CURRENT MEASUREMENT

1. Red lead to "V Ω mA". Black lead to "COM". (For measurements between 200mA and 10A connect red lead to "10A" jack.)

2. RANGE switch to desired DCA position.

3. Open the circuit to be measured, and connect test leads IN SERIES with the load in which current is to be measured.

4. Read current value on Digital Display.

RESISTANCE MEASUREMENT

1. Red lead to "V Ω mA". Black lead to "COM".

2. RANGE switch to desired Ω Position.

3. If the resistance being measured Is connected to a circuit, turn off power and discharge all capacitors before measurement.

4. Connect test leads to circuit being measured.

5. Read resistance value on Digital Display.

DIODE MEASUREMENT

1. Red lead to "V ΩmA". Black lead to "COM".

2. RANGE switch to —▷|— position.

3. Connect the red test lead to the anode of the diode to be measured and black test lead to cathode.

4. The forward voltage drop in mV will be displayed. If the diode is reversed, figure "1" will be shown.

TRANSISTOR hFE MEASUREMENT

1. RANGE switch to tha hFE position.

2. Determine whether the transistor is NPN or PNP type and locate the Emitter, Base and Collecter leads. Insert the leads into the proper holes of the hFE Socket on the front panel.

3. The meter will display the approximate hFE value at the condition of base current 10 μA and VCE 2.8V.

TEMPERATURE MEASUREMENT

1. RANGE switch to TEMP position and the current room temperature appears on the display with the charactor C.

2. Connect the k type thermoelectric couple to "V ΩmA" and "COM" jacks.

3. Contact the object under measurement with the thermoeletric couple carefully.

4. Read the tempereture C on the display.

BATTERY TEST

1. Red lead to "V Ω mA". Black lead to "COM".

2. RANGE switch to BATT position.

3. Connect test leads to the terminals of the bettery under measurement and read the display value.

AUDIBLE CONTINUITY TEST

1. Red lead to "V Ω mA". Black lead to "COM".

2. RANGE switch to •))) position.

3. Connect test leads to two points ol circuit to be tested. If the resistance is lower then I k ohm, buzzer will sound.

TEST SIGNAL USE

1. RANGE switch to ⎍ position.

2. A test signal (50Hz or 1000Hz depending on the model of multimeter) appears between "V ΩmA" and "COM" jacks. The output voltage is apporx. 5Vpp with a certain DC component, so additional insulating capacitor should be used.

BATTERY AND FUSE REPLACEMENT

Fuse rarely need replacement and blow almost always as a result of operator error.

If "BAT" appears on display, it indicates that the baltery should be replaced.

To replace battery & Fuse (200mA/250V) remove the 2 screws in the bottom of the case. Simply remove the old, and replace with a new one. Be careful to observe polarity.

CAUTION

Before attempting to open the case of the instrument, be sure to disconnect test leads from any energized circuits to avoid shock hazard.

ACCESSORIES

- Operator's instruction manual
- Set of test leads
- Gift box
- K type thermoelectric couple (Optional)
- 9 volt battery, NEDA 1694 6F22 TYPE (Optional)

OPERATOR'S INSTRUCTION MANUAL

MINI DIGITAL MULTIMETER


WARNING

READ AND UNDERSTAND THIS MANUAL BEFORE USING THE INSTRUMENT
Failure to understand and comply with the WARNINGS and operating instructions can result in serious or fatal injuries and /or prop erty damage.